SCOPING REPORT OF INCORPORATING BARGING INTO SALVAGED FISH RELEASE PROCEDURES

Investigators

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Summary

Reclamation's Tracy Fish Collection Facility (TFCF), located in the southern Sacramento-San Joaquin Delta (Delta), was designed to divert juvenile Chinook salmon (*Oncorhynchus tshawytscha*) and striped bass (*Morone saxatilis*) from Delta Mendota Canal (DMC) flows, thereby preventing entrainment loss to the downstream Jones Pumping Plant (JPP, Central Valley Project; Bates *et al*. 1960). The TFCF uses a louver-bypass system to intercept and guide fish from DMC entrainment into collection tanks, where they are held until they are truck-transported and released back to the Delta away from the immediate influence of the JPP.

Problem Statement

The current fish release protocol requires that fish be released through a long pipe at 1 of 2 release sites in the Delta where predatory species are known to reside or at least prey on released fishes (Miranda et al. 2010). In addition, migrating salmonid smolts are vulnerable to tidal and other influences and may become disoriented from outmigrating to the ocean. According to the Reasonable and Prudent Alternative in the 2009 Biological Opinion (National Marine Fisheries Service 2009), "Release Site Studies shall be conducted to develop methods to reduce predation at the "end of the pipe" following release of salvaged fishes. Studies shall examine but are not limited to:

> a. "Potential use of barges to release the fish in different locations within the western Delta, with slow dispersion of fish from barge holding tanks to Delta waters";

This study would scope out the feasibility of releasing salvaged fish from a moving barge to reduce predation and overall fish entrainment losses.

Goals and Hypotheses

Determine the feasibility of incorporating barging to improve survival of released salvaged fish. Identify potential positive and negative outcomes of barging.

Materials and Methods

The first year of this study would be a scoping year. Conduct literature review of existing fish barging systems including physical features, operations, effectiveness, and costs. Review salvage data from the TFCF to understand magnitude of release component. If deemed possible, then a fish barge release system would be developed and tested in subsequent years.

Coordination and Collaboration

These studies will be coordinated with the California Department of Fish and Game's Delta diversion facilities reporting program and the Tracy Fish Collection Facility staff. All work will be reviewed by the Tracy Technical Advisory Team through progress updates on request and reviews of study plans and all reports.

Endangered Species Concerns

Discussions will be held with the US Fish and Wildlife Service, National Marine Fisheries Service, and the State of California regarding vulnerability of salvaged fish to barging.

Dissemination of Results (Deliverables and Outcomes)

Provide draft summary report of scoping information by September 30, 2013.

Literature Cited

Bates, D.W., O. Logan, and E.A. Pesonen. 1960. Efficiency evaluation, Tracy Fish Collection Facility, Central Valley Project, California. U.S. Fish and Wildlife Service. Seattle, WA, USA.

National Marine Fisheries Service. 2009. Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project. National Marine Fisheries Service, Southwest Region. Long Beach, CA.

Miranda, J. J. Morinaka, J. DuBois, and M. Horn. 2010. Release Site Predation Study. California Department of Water Resources, California Natural Resources Agency.